UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/702,137	11/04/2003	Joseph Harold Steinmetz	35022.001C2	6841

34395 7590 06/27/2006

OLYMPIC PATENT WORKS PLLC
P.O. BOX 4277
SEATTLE, WA 98104

EXAMINER	
CHOI, WOO H	

ART UNIT	PAPER NUMBER
2189	

DATE MAILED: 06/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/702,137	STEINMETZ ET AL.	
	Examiner	Art Unit	
	Woo H. Choi	2189	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *5/2/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 8 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In the remarks section of Applicant's response to the last office action, received April 7, 2006, Applicant argued that the terms "sector length" or "sector size" refers to the size of the data payload. However, claim 8 recites "error detection information within the internal-virtual-disk-interface sectors". Clearly, error detection information is not data payload. This is in direct conflict with Applicant's definition offered in the argument. Claim 9 is rejected for depending from claim 8.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 4 – 6, 13, and 16 – 18 rejected under 35 U.S.C. 102(b) as being anticipated by Shinohara (US Patent No. 5,742,934).

5. With respect to claims 1 and 13, Shinohara discloses a virtual disk formatting system (figure 1) comprising:

a number of mass-storage devices (4) having physical sectors (figure 2, 4) of a first sector length (col. 3, lines 58 – 60, physical sector length is 528 bytes); and

a routing component (3) that provides a virtual disk interface to the mass-storage components (4) by mapping access operations, received from external entities, directed to a virtual disk (1) having virtual sectors of a second sector length (col 3, lines 60 – 62, logical blocks of size 512) to the number of mass-storage devices.

6. With respect to claims 4 and 16, the routing component includes a processor (figure 1, 6, col. 3, lines 39 – 55) and firmware/software programs that carry out virtual disk formatting.

7. With respect to claims 5, 6, 17 and 18, virtual sectors are mapped onto contiguous physical sectors (figure 2), **allowing** the physical sector and byte address of the first byte of a virtual sector to be calculated, when the second sector length is greater than the first sector length (there is no evidence to suggest that address calculation as claimed is prohibited in Shinohara's disclosure).

8. Claims 1, 4 – 6, 13, and 16 – 18 rejected under 35 U.S.C. 102(b) as being anticipated by Colligan (US Patent Application Publication No. 2002/0065982).

9. With respect to claims 1 and 13, Colligan discloses a virtual disk formatting system comprising (figure 1):

a number of mass-storage devices having physical sectors of a first sector length (page 5, paragraph 44, 512 bytes); and

a routing component (175) that provides a virtual disk interface to the mass-storage components by mapping access operations, received from external entities, directed to a virtual disk having virtual sectors of a second sector length (paragraph 44, 1024 bytes) to the number of mass-storage devices.

10. With respect to claims 4 and 16, the routing component includes a processor and firmware/software programs that carry out virtual disk formatting (see paragraphs 26 and 44).

11. With respect to claims 5, 6, 17 and 18, virtual sectors are mapped onto contiguous physical sectors (paragraph 44, efficient queuing arrangement to accommodate a 1024 virtual sector with 512 physical sectors suggests contiguous physical sectors), **allowing** the physical sector and byte address of the first byte of a virtual sector to be calculated, when the second sector length is greater than the first sector length (there is no evidence to suggest that address calculation as claimed is prohibited).

12. Claims 1, 13, 7, 8, 12, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Manka (US Patent No. 5,072,378).

With respect to claims 1, 7, 12, 13 and 19, Manka discloses a virtual disk formatting system comprising:

a number of mass-storage devices having physical sectors of a first sector length (figure 10, physical sector length m); and

a routing component that provides to external entities a first virtual disk interface to the mass-storage components by mapping access operations, received from the external entities, directed to the first virtual disk interface having virtual sectors of a second sector length (col. 3, lines 3 – 11, virtual record length, virtual record is the basic unit of storage in the virtual disk storage system, see also figure 9, virtual track format, and col. 18, lines 52 – 54) to an internal, virtual disk interface with internal-virtual-disk-sectors having a third sector length larger than the second sector length (figure 10, logical sector length m+n), and then mapping the access operations from the internal, virtual disk interface to the number of mass-storage devices.

13. With respect to claims 8, 9 and 20, see figure 9, see cyclic check field. See also abstract.

Claim Rejections - 35 USC § 103

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

15. Claims 2, 3, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Colligan in view of Sanada et al (US Patent Application Publication No. 2002/0083285, hereinafter "Sanada").

Colligan discloses all of the limitations of the parent claims as discussed above. Colligan also discloses ATA disk drives (paragraph 6). However, Colligan does not specifically disclose fibre channel disk based access. On the other hand, Sanada discloses fibre channel storage controller that routes storage traffic among multiple hosts and a storage system (figure 1). It would have been obvious to one of ordinary skill in the art, having the teachings of Colligan and Sanada before him at the time the invention was made, to adapt Colligan's storage system for use in a network environment as taught by Sanada, in order to be able to share the storage system among multiple hosts with access security.

16. Claims 2, 3, 10, 11, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manka in view of Sanada and further in view of Surugucchi (US Patent No. 6,928,509).

Manka discloses all of the limitations of the parent claims. However, Manka does not specifically disclose fibre channel disk based access. On the other hand, Sanada discloses fibre channel storage controller that routes storage traffic among multiple hosts and a storage system (figure 1). It would have been obvious to one of ordinary skill in the art, having the teachings of Manka and Sanada before him at the time the invention was made, to adapt Manka's storage system for use in a network environment as taught by Sanada, in order to be able to share the storage system among multiple hosts with access security.

While Manka and Sanada disclose all of the limitations discussed above, they do not disclose ATA disks. On the other hand, Surugucchi teaches that S-ATA provides great value for servers and RAID application because of cost advantages and the ability to hot plug devices (col. 1, lines 50 – 54). It would have been obvious to one of ordinary skill in the art, having the teachings of Manka, Sanada and Surugucchi before him at the time the invention was made, to use S-ATA disks in the system of Manka and Sanada, in order to take advantage of benefits mentioned above.

Response to Amendment

17. Claim 4 has been amended to overcome a previous objection. Corresponding objection is withdrawn.

Response to Arguments

18. Applicant's argument with respect to Shinohara reference is not persuasive. Regarding Applicant's definition of sector size, it is inconsistent with claim 8. As disclose by Shinohara, a physical sector in the flash disk consists of a sector data area 100 and a sector management area 101. The total length of this physical "sector" is 512 + 16 bytes. On the other hand the length of a corresponding logical sector is 512 bytes. Shinohara's device 1 is not an actual disk. The flash memory looks like a disk with 512 byte sectors.

With respect to Applicant's argument regarding "storage router", the term "router" does not appear anywhere in claim 1 (or 13). The limitation "routing component" is not a term of art.

The flash memory controller 3, is a component that routes data between the host 2 and the memory 4.

Conclusion

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Woo H. Choi whose telephone number is (571) 272-4179. The examiner can normally be reached on M-F, 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Reginald Bragdon can be reached on (571) 272-4204. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Woo H. Choi
June 20, 2006